other end of the tube is connected with each deformation section **41**. It is desirable that the fluid channel **44** concerned is formed by material which possesses flexibility of a certain degree in the longitudinal direction and in the direction orthogonal to the longitudinal direction of the tube, but does not change at least with respect to the diameter (namely, it does not expand nor contract in the diameter direction). FIGS. **1-3** illustrate only some fluid channels **44**, in order to simplify illustration, but the actual fluid channel **44** is arranged so that the fluid channel **44** may connect between the pump **43** and all the deformation sections **41**. In addition, the cross-section of the fluid channel **44** cut in the direction orthogonal to the longitudinal direction of the fluid channel **44** is not limited to a shape of annulus.

[0038] The pump **43** is operable to perform the discharge and suction of fluid. A so-called diaphragm micro pump is employed as an example in the present embodiment.

[0039] Each of the plural deformation sections **41** is formed by a transparent elastomeric material and possesses a predetermined shape (a circular shape in the example of FIG. **1**). The injection and discharge of fluid (a liquid, a gas, a gelatinous material, etc.) are possible to and from the interior of the circular section concerned of the transparent elastomeric material. When the fluid is injected into the interior of the circular section, the transparent elastomeric material is possible to expand in the thickness direction of the transparent sheet **42**. On the other hand, when the fluid is discharged from the interior of the circular section, the transparent elastomeric material is possible to contract in the thickness direction of the transparent sheet **42**. The circular section of each of the deformation sections **41** is connected with the fluid discharge suction orifice of the pump **43** through the fluid channel **44**. Consequently, when the fluid (a liquid, a gas, a gelatinous material, etc.) is discharged from the pump **43**, the fluid will be injected into the circular section of the deformation section **41** through the fluid channel **44**, and the circular section concerned will expand in the thickness direction of the transparent sheet **42**. On the other hand, when the pump **43** sucks the fluid through the fluid channel **44**, the fluid is discharged from the interior of the circular section of the deformation section **41**, and the circular section concerned will contract to almost the same thickness of the transparent sheet **42**. However, in the case of the mobile-phone terminal of the present embodiment, the tactile-visual UI panel **45** is provided over the screen surface of the display panel **46**, as mentioned above, and the screen surface of the display panel **46** concerned possesses the hardness of a certain degree, and is not deformed by an external force to some extent. Accordingly, when the fluid is injected into the deformation section **41** to expand the circular section, the expansion direction will be on the opposite side of the screen surface of the display panel **46** (namely, on the touch panel side), as illustrated in FIG. **3**. In the case where the tactile-visual UI panel **45** is provided over the display panel **46** possessing the size of about 1.5-3 inches, similar to the size of a display panel which is provided to a small portable information terminal such as the mobile-phone terminal of the present embodiment, and where the fluid is injected to the deformation section **41** in the panel **45** to form a circular-convex shape, it is possible to make the diameter of the circular section of the deformation section **41** concerned be 3-8 mm as an example, the height of the expanded convex shape (the amount of convex at the time of projecting from the surface of the transparent sheet **42**) be about 1 mm as an example, and the hardness (softness) of the circular portion of the expanded convex shape be about 60 degrees in rubber hardness as an example. According to the present embodiment, when a button or a key for example is formed by expanding the deformation section **41** of the tactile-visual UI pane **45**, it is also possible to adjust the contained fluid pressure of the deformation section, by adjusting the fluid discharge amount or fluid suction amount of the pump **43**.

[0040] The transparent sheet **42**, each of the deformation sections **41**, and the fluid channel **44** may be formed by the same member. That is, for example, the transparent sheet **42** may be formed by stacking and gluing two transparent elastomeric sheets, and when stacking and gluing these two sheets together, the portion of each of the deformation sections **41** and the portion of each of the fluid channels **44** are not glued. By the method, when the fluid is discharged from the pump **43**, the fluid will pass along the fluid channel **44** formed by the unglued part of the two sheets, and will be injected into the circular section of the deformation section **41** similarly formed by the unglued part of the two sheets. As the result, the circular section concerned will expand. On the other hand, when the pump **43** sucks the fluid, the circular section will contract because the fluid discharged from the interior of the circular section of the deformation section **41** returns to the pump **43** through the fluid channel **44**. In the case of this example, if the width of the unglued part which forms the fluid channel **44** (namely, it corresponds to the diameter of the fluid channel) is small enough compared with the thickness of the transparent sheet **42**, the expansion and contraction of the fluid channel **44** concerned in the diameter direction by the fluid can be ignored.

[0041] In FIGS. **1-3**, an example is explained for a case where the expansion and contraction are performed for all the deformation sections **41** at the same time by the discharge and suction of fluid with the pump **43**. Alternatively, however, for example, a micro valve (not shown) may be provided in a fluid injection part of each of the deformation sections **41**, and open/close of each micro valve may be controlled separately, thereby enabling the injection and discharge of fluid to and from each of the deformation sections **41**. By this scheme, it becomes possible to perform expansion and contraction for the desired deformation section **41** only.

[0042] As mentioned above, according to the basic constitution of the tactile-visual UI panel **45** in the mobile-phone terminal of the present embodiment illustrated in FIGS. **1-3**, by controlling the discharge and suction of fluid with the pump **43**, and controlling the injection and discharge of the fluid to and from each of the deformation sections **41**, it becomes possible to form a convex shape in the front side of the display panel **46** if needed, or conversely to purge the convex shape to return to an almost flat surface.

[0043] In the mobile-phone terminal of the present embodiment, if an image of a virtual key is displayed on a display screen so as to correspond to the place where the deformation section **41** is arranged over the tactile-visual UI panel **45**, and at the same time, if the fluid is injected to the deformation section **41** of the tactile-visual UI panel **45** to deform the deformation section **41** to a convex shape, the virtual key on the display screen will actually appear visually as a key of a convex shape to a user, and the user will be able to recognize the deformation section **41** of the convex shape as an actual key, tactilely as well as visually, by touching the deformation section **41** with a finger etc.

[0044] Since the touch panel is provided over the surface of the tactile-visual UI panel **45** in the mobile-phone terminal of